Bowhead whales are one of the largest whale species around, at 70 feet they're the third longest whale after the blue and fin whales, and the second heaviest, weighing in up to 100 tons. Bowhead Whales, or Balaena mysticetus , are baleen whales, which are filter feeders; instead of teeth baleen whales use baleen, which are long hairy plates that hang in rows from their upper jaws. These plates act like the teeth of a comb to strain huge volumes of water to capture their food which is made up of krill, other zooplankton and small fish. Bowheads prefer to live in the near freezing waters of the arctic and subarctic. Bowheads are also thought to be one of the longest lived mammals on the planet. Old harpoon tips from the 1800s have been found lodged in the skin of Bowheads suggesting they can live around 200 years!

The Bowhead whale is listed as an endangered species under the U.S. Endangered Species Act (or ESA). Although all marine mammal populations are monitored per the Marine Mammal Protection Act (MMPA ), the Bowhead whale population is also monitored to help manage a subsistence fishery. Yes, I said fishery, though the commercial whaling that lead to the decline of Bowheads has ended, Bowhead whales are still taken by Alaska natives near Barrow Alaska, a tradition they have had for thousands of years.

Bowhead whales live in the Bering Sea and Arctic Sea . They migrate between the two bodies of water between April and June and it is during this time that the whales are counted. Observers camp out on the ice flows at Point Barrow Alaska and count whales as they pass The whales are counted when they come up for air within a lead, an area of open water between ice flows that may or may not be close to the observation shack.

Timing counts of bowhead whales as they migrate past Point Barrow, Alaska is the only way to get a useful count, otherwise they are too spread out and difficult to find the rest of the year. The migration period only lasts from April to June, so as many counts as possible must be conducted during this time, as too many missed days of counting may make the estimate less accurate. Weather is a challenge too. Not only can the ice leads close and reopen at any moment, but wind, sleet, snow and fog can make seeing the whales even more difficult or impossible. However, either from the ice, or from the air, it isn't possible to count EVERY single whale, some will be missed no matter what.

So how do scientists know what percent of whales may not be seen by the observers?

Scientists determine the number of whales recounted from year to year to figure out how many whales are inevitably missed during the counts. Scientists see what number of whales return from previous years, how many are absent, and how many are new whales. Whales are identified based on markings on their head and back, consisting of scars, scratches and color patches. By recounting whales, scientist can determine what proportion of the population is actually being counted, from which they can estimate the total population.